

## TECHNICAL BASIS FOR TIER I OPERATING PERMIT

**DATE:** August 20, 2002

**PERMIT WRITER:** Dan Pitman

**PERMIT COORDINATOR:** Bill Rogers

**SUBJECT:** *TECHNICAL MEMORANDUM FOR TIER I OPERATING PERMIT*  
AIRS Facility No. 021-00001, Louisiana-Pacific, Moyie Springs  
Final Tier I Operating Permit

<b>PERMITTEE:</b>	Louisiana-Pacific P.O. Box 108 Moyie Springs, ID 83845
<b>PERMIT NO:</b>	# 021-00001
<b>STANDARD INDUSTRIAL CLASSIFICATION (SIC):</b>	2421
<b>DESCRIPTION:</b>	Lumber manufacturing
<b>KIND OF PRODUCTS:</b>	Dimensional lumber
<b>RESPONSIBLE OFFICIAL:</b>	Bruce Mallory
<b>PERSON TO CONTACT:</b>	Jim Perry, Plant Manager
<b>TELEPHONE NO:</b>	(208) 267-3166
<b>NO. OF FULL-TIME EMPLOYEES:</b>	160
<b>AREA OF OPERATION:</b>	190 acres
<b>FACILITY CLASSIFICATION:</b>	A
<b>COUNTY:</b>	Boundary
<b>AIR QUALITY CONTROL REGION:</b>	063
<b>UTM COORDINATES:</b>	559.44, 5396.76
<b>EXACT PLANT LOCATION:</b>	Old Highway 2 (see UTM Coordinates)

## TABLE OF CONTENTS

PUBLIC COMMENT/EPA REVIEW .....	3
LIST OF ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE .....	4
1. PURPOSE .....	5
2. SUMMARY OF EVENTS .....	5
3. BASIS OF THE ANALYSIS .....	5
4. REGULATORY ANALYSIS - GENERAL FACILITY .....	5
5. REGULATORY ANALYSIS - EMISSION UNITS .....	10
6. INSIGNIFICANT ACTIVITIES .....	20
7. COMPLIANCE SCHEDULE .....	21
8. REGISTRATION FEES .....	24
9. RECOMMENDATION .....	24
APPENDIX	

## **PUBLIC COMMENT/EPA REVIEW**

The draft permit has gone through a 30-day public comment period, which was held from April 4 to May 6, 2002. No comments were received from any entity and a hearing was not requested.

On August 22, 2002, the proposed operating permit and the technical memorandum were sent to EPA for their 45-day review as required by IDAPA 58.01.01.366. EPA did not provide written objection to the proposed permit.

## LIST OF ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
bd	bone dry ton
bd/yr	bone dry tons per year
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EFB	electrified filter bed
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
gr	grain (1 lb = 7000 grains)
gr/dscf	grains per dry standard cubic foot
HAPs	hazardous air pollutants
hr/yr	hours per year
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
LP	Louisiana-Pacific
MMBtu	million British thermal unit
MMBf/yr	million Board feet per year
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM <sub>10</sub>	particulate matter with an aerodynamic diameter of 10 micrometer or less
PSD	Prevention of Significant Deterioration
PTC	permit to construct
SCC	Source Classification Code
scf	standard cubic foot
SO <sub>2</sub>	sulfur dioxide
T/yr	tons per year (1 T = 2000 lb)
VOC	volatile organic compound

## **1. PURPOSE**

The purpose of this memorandum is to explain the legal and factual basis for this Tier I operating permit in accordance with IDAPA 58.01.01.362, *Rules for the Control of Air Pollution in Idaho*.

The Department has reviewed the information provided by LP regarding the operation of their Moyie Springs facility. This information was submitted based on the requirements of the Tier I operating permit in accordance with IDAPA 58.01.01.300.

Based on the information submitted, DEQ has prepared a proposed Tier I operating permit for the LP Moyie Springs facility. The proposed permit will be forwarded to EPA for review in accordance with IDAPA 58.01.01.366.

## **2. SUMMARY OF EVENTS**

On July 5, 1995, DEQ received LP-Moyie Springs Title V operating permit application. It was determined administratively complete on September 5, 1995.

Additional application materials were received on July 29, 1998 and on April 15, 1999.

A public comment period was held between April 4, 2002 and May 6, 2002 which included an opportunity for a hearing. No hearing was requested.

On August 22, 2002, the proposed operating permit and the technical memorandum were sent to EPA for their 45-day review. On October 7, 2002, EPA issued a letter stating that the permit was eligible for issuance; therefore, the final operating permit was prepared on October 22, 2002.

## **3. BASIS OF THE ANALYSIS**

The following documents were relied upon in preparation of this memorandum and the Tier I operating permit:

- Tier I operating permit application submittals
- Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, January 1995, Office of Air Quality Planning and Standards, EPA
- Guidance developed by the EPA and DEQ
- Title V Permits issued by other jurisdictions

## **4. REGULATORY ANALYSIS - GENERAL FACILITY**

### **4.1 FACILITY DESCRIPTION**

#### **4.1.1 General Process Description**

Logs are delivered by haul trucks to the Moyie Springs facility, unloaded and temporarily stored. The first step in the manufacturing process involves the removal of bark from the delivered logs in one of two ring debarkers. The bark is then mechanically conveyed through a hog to the fuel mix bin. After the debarkers, the logs are trimmed in length prior to entering the studmill. The log sawing operations within the studmill reduce the logs to desired dimensions. Sawdust and green chips are by products of the studmill operation. Sawdust is either mechanically conveyed to the bark hog for use as a fuel or is pneumatically transferred to overhead truck bins for off-site sales. Chips are transferred off-site either by truck or railcar.

The Moyie Springs mill dries primarily green lumber cut at the Moyie Springs mill, but has the capacity to dry green lumber from off-site sales. All lumber is dried in one of four dry kilns. Steam from a boiler is used to heat the kilns. The boiler produces 75,000 pounds of steam per hour and is fueled primarily with a mixture of sawdust and bark. On occasion, planer shavings are used as fuel (approx. 220 bdt/yr). After drying, the wood is planed to final dimensions in the planer mill in one of two high-speed planers. Shavings from each of the planers are pneumatically transferred to overhead truck bins through separate cyclonic collectors, followed by rotary air locks and baghouses.

The planed lumber is then trimmed to marketable length. Trim ends are reduced in a hog and are pneumatically transferred to the overhead truck shavings bins along with the shavings. The lumber is then graded, inked, stacked, and banded. A low volatile organic compound (VOC) water seal is applied to the ends of the lumber. The lumber is then stored until it is shipped off-site by rail or truck.

#### **4.1.2 Facility Classification**

The facility is classified as major in accordance with IDAPA 58.01.01.008.10 for Tier I permitting purposes because the facility has the potential to emit carbon monoxide and particulate matter over 100 T/yr. There is not a source-specific MACT requirement promulgated for this source category. Hazardous air pollutants are not emitted above major facility thresholds according to the applicant's submittal. The facility is not a designated facility in accordance with IDAPA 58.01.01.006.27. The SIC defining the facility is 2421 and the AIRS facility classification is A.

#### **4.1.3 Area Classification**

The facility is located within AQCR 63, and in Boundary County. The area is classified as attainment or unclassifiable for all federal and state criteria pollutants. There are no Class I areas within 10 km of the facility.

#### **4.1.4 Permitting History**

No permits have been issued to the facility.

### **4.2 Facility-wide Applicable Requirements**

#### **4.2.1 Rules for the Control of Fugitive Dust - IDAPA 58.01.01.650-651**

##### **4.2.1.1 Requirement**

Permit Condition 1.1 states that all reasonable precautions shall be taken to prevent particulate matter from becoming airborne in accordance with IDAPA 58.01.01.650-651.

Permit Condition 1.1 also states that visible emissions shall not be observed leaving the property boundary for a period or periods aggregating more than three minutes in any 60-minute period. This condition is taken from Permit Condition 1.3 in PTC No. 027-00001, dated July 23, 2001, and is an applicable permit condition for the Tier I operating permit in accordance with IDAPA 58.01.01.322.01.

##### **4.2.1.2 Compliance Demonstration**

Permit Condition 1.2 states that the permittee is required to monitor and maintain records of the frequency and the methods used by the facility to reasonably control fugitive particulate emissions. IDAPA 58.01.01.651 gives some examples of ways to reasonably control fugitive emissions which include using water or chemicals, applying dust

suppressants, using control equipment, covering trucks, paving roads or parking areas, and removing materials from streets.

Permit Condition 1.3 requires that the permittee maintain a record of all fugitive dust complaints received. In addition, the permittee is required to take appropriate corrective action as expeditiously as practicable after a valid complaint is received. The permittee is also required to maintain records that include the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

To ensure that the methods being used by the permittee to reasonably control fugitive emissions whether or not a complaint is received, Permit Condition 1.4 requires that the permittee conduct quarterly inspections of the facility. The permittee is required to inspect potential sources of fugitive emissions during daylight hours and under normal operating conditions. The fugitive emissions inspection shall consist of a see/no see evaluation for each potential source of visible emissions. If any fugitive emissions are present, the permittee shall perform a Method 22 visible emissions test at the property boundary in accordance with the procedures outlined in IDAPA 58.01.01.625. If visible emissions are observed leaving the property boundary for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance to the Department in writing within 72 hours. The permittee is also required to maintain records of the results of each fugitive emission inspection.

Permit Conditions 1.3 and 1.4 require the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of receiving a valid complaint or determining that fugitive particulate emissions are not being reasonably controlled meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

#### **4.2.2 Rules for the Control of Odors - IDAPA 58.01.01.775-776**

##### **4.2.2.1 Requirement**

General Provision 6.28 and IDAPA 58.01.01.776 both state: *"No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution."* This condition is currently considered federally enforceable until such time it is removed from the SIP, at which time it will be a state-only enforceable requirement.

##### **4.2.2.2 Compliance Demonstration**

General Provision 6.29 requires the permittee to maintain records of all odor complaints received. If the complaint has merit, the permittee is required to take appropriate corrective action as expeditiously as practicable. The records are required to contain the date each complaint was received, a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

General Provision 6.29 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of receiving a valid odor complaint meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

#### **4.2.3 Visible Emissions - IDAPA 58.01.01.625**

##### **4.2.3.1 Requirement**

Permit Condition 1.5 and IDAPA 58.01.01.625 state: *"(No) person shall discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined . . ."* by IDAPA 58.01.01.625. This provision does not apply when the presence of uncombined water, nitrogen oxides, and/or chlorine gas are the only reason(s) for the failure of the emission to comply with the requirements of this rule.

##### **4.2.3.2 Compliance Demonstration**

To ensure reasonable compliance with the visible emissions rule, Permit Condition 1.6 requires that the permittee conduct routine visible emissions inspections of the facility. The permittee is required to conduct monthly facility-wide inspections of potential sources of visible emissions, during daylight hours and under normal operating conditions. The length of observation shall be no less than 10 minutes. In the event any level of visible emissions are present, the permittee shall perform a visible emissions reading by a certified visible emissions reader in accordance with the procedures contained in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded. If opacity is greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance in the annual compliance certification and in accordance with IDAPA 58.01.01.130-136. The permittee shall maintain records of the results of each monthly visible emission inspection. The records shall include, at a minimum, the date of each inspection and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.

It should be noted that if a specific emission unit has a specific compliance demonstration method for visible emissions that differs from Permit Condition 1.6, then the specific compliance demonstration method overrides the requirement of Permit Condition 1.6.

Permit Condition 1.6 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within twenty-four hours of discovering visible emissions meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

#### **4.2.4 Startup, Shutdown, Scheduled Maintenance, Safety Measures, Upset and Breakdown IDAPA 58.01.01.130-136**

##### **4.2.4.1 Requirement**

Permit Condition 1.7 requires that the permittee comply with the requirements of IDAPA 58.01.01.130-136 for startup, shutdown, scheduled maintenance, safety measures, upset and breakdowns. This section is fairly self-explanatory, and no additional detail is necessary in this technical analysis. It should, however, be noted that subsections 133.02, 133.03, 134.04, and 134.05 are not specifically included in the permit as applicable requirements. These provisions of the *Rules* only apply if the permittee anticipates requesting consideration under subsection 131.02 of the *Rules* to allow DEQ to determine if an enforcement action to impose penalties is warranted. Section 131.01 states *" . . . The owner or operator of a facility or emissions unit generating excess emissions shall comply with Sections 131, 132, 133.01, 134.01, 134.02, 134.03, 135, and 136, as applicable. If the owner or operator anticipates requesting consideration under Subsection 131.02, then*



*the owner or operator shall also comply with the applicable provisions of Subsections 133.02, 133.03, 134.04, and 134.05."* Failure to prepare or file procedures pursuant to Sections 133.02 and 134.04 is not a violation of the *Rules* in and of itself, as stated in subsections 133.03.a and 134.06.b. Therefore, since the permittee has the option to follow the procedures in Subsections 133.02, 133.03, 134.04, and 134.05; and is not compelled to, the subsections are not considered applicable requirements for the purpose of this permit and are not included as such.

#### **4.2.4.2 Compliance Demonstration**

The compliance demonstration is contained within the text of Permit Condition 1.7. No further clarification is necessary here.

#### **4.2.5 Chemical Accident Prevention Provisions - 40 CFR Part 68**

##### **4.2.5.1 Requirement (General Provision 6.33)**

Any facility that has more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115, must comply with the requirements of the Chemical Accident Prevention Provisions at 40 CFR 68 no later than the latest of the following dates:

- Three years after the date on which a regulated substance present above a threshold quantity is first listed under 40 CFR 68.130.
- The date on which a regulated substance is first present above a threshold quantity in a process.

This facility is not currently subject to the requirements of 40 CFR 68. However, should the facility ever become subject to the requirements of 40 CFR 68 then it must comply with the provisions contained in 40 CFR 68 by the time listed above.

#### **4.2.6 Sulfur Content of Distillate Fuel Oil (General Provision 6.33)**

##### **4.2.6.1 Requirement**

No person shall sell, distribute, use or make available for use, any distillate fuel oil containing more than the following percentages of sulfur:

- ASTM Grade 1 fuel oil - 0.3 % by weight
- ASTM Grade 2 fuel oil - 0.5 % by weight

##### **4.2.6.2 Compliance Demonstration**

The facility does not consist of any stationary sources which combust fuel oil. The facility stores diesel fuel for use by mobile sources at their facility. The diesel storage tank is an insignificant activity in accordance with IDAPA 58.01.01.317.b.i.3. After considering that the diesel storage tank qualifies as an insignificant activity, and that the *Rules for the Control of Air Pollution In Idaho* and the Tier I permitting requirements for Title V facilities are primarily for stationary sources, the compliance burden has been left to the distributor of the fuel oil.

#### **4.3 HAPs**

Average emission factors for methanol and formaldehyde were provided by LP-Moyie Springs. At the facilities maximum operational capacity of 254 MMBf/yr, methanol emissions were reported to be as high as 8.6 T/yr, and formaldehyde emissions were reported to be as high as 0.4 T/yr. Based on these emissions, the facility is not a major

source of Hazardous Air Pollutants (HAPs) because no single HAP is emitted in amounts greater than or equal to 10 T/yr, and no combination of HAPs are emitted in amounts greater than or equal to 25 T/yr.

There is not a source specific NESHAP standard for this source category in either 40 CFR 61, or 40 CFR 63. Therefore, there are no applicable permit requirements for HAP emissions from this facility.

#### 4.4 Alternative Operating Scenarios

No alternative operating scenarios were provided by LP-Moyie Springs.

#### 4.5 Trading Scenarios

No trading scenarios were provided by LP-Moyie Springs.

#### 4.6 Excess Emissions

The excess emission requirements of the *Rules for the Control of Air Pollution in Idaho* are listed in Permit Condition 1.7. The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130-136 for excess emissions. The provisions of IDAPA 130-136 shall govern in the event of conflicts between Permit Condition 1.7 and the regulations of IDAPA 130-136.

#### 4.7 Compliance Assurance Monitoring

The facility is applicable to the Compliance Assurance Monitoring (CAM) requirements of 40 CFR 64. However, in accordance with 40 CFR 64.5.a, the facility is not required to submit an application demonstrating compliance with CAM until a significant permit revision is requested, or an application is submitted for permit renewal, since the facility's application was determined complete prior to April 20, 1998.

### 5. REGULATORY ANALYSIS - EMISSION UNITS

#### General Emission Description

Emissions from the facility primarily originate from wood byproducts handling operations, the steam generator, and lumber drying kilns. The generator (hog fuel fired boiler) is fired by wood waste. Emissions from the source largely consist of particulate matter, carbon monoxide, and volatile organic compounds.

Table 1. ESTIMATED POTENTIAL TO EMIT

Estimated potential to emit LP-Moyie Springs	
Pollutant	Emission rates (t/yr)
PM	209.1
CO	220.9
VOC	200.9
SO <sub>2</sub>	7.13
NO <sub>x</sub>	71.25
<b>TOTAL</b>	<b>709.3</b>

## **5.1 Boiler**

### **5.1.1 Emission Unit Description**

The facility operates a hog fuel-fired boiler. The boiler is manufactured by Kipper and Sons, and is a spreader-stoker with a maximum rated design capacity of 125 MMBtu/hr or 75,000 pounds of steam per hour. The boiler was installed in 1972. Emissions resulting from the combustion of wood fuel in the boiler are routed to a high efficiency multiclone. Ash and partially combusted wood fiber are separated by the multiclone and are reintroduced into the boiler firebox. Following the multiclone, the uncollected fine dust and smoke particles are removed in an electrified filter bed fine dust collector (EFB). In this system, the fine dust particles are given an electrostatic charge in a corona ionizer and are then deposited onto the surface of electrically polarized gravel. The spent pea gravel is removed from the filtration region of the EFB and is cleaned externally in a pneumatic conveyor. Dust removed from the pea gravel is filtered in a small filter baghouse (EFB Media Baghouse).

### **5.1.2 Permit Requirement**

#### **5.1.2.1 Applicability**

Commencement of construction of the Kipper and Sons spreader-stoker boiler was initiated in the fall of 1971. New Source Review permitting requirements were not promulgated at this time. It follows that there are no existing applicable permit requirements for this emission unit because the state of Idaho did not have an approved state implementation plan until May 31, 1972. New Source Performance Standards, in accordance with 40 CFR 60, do not apply to this steam generator because its construction date predates all applicable NSPS regulations.

The boiler is subject to the visible emissions limitation of IDAPA 58.01.01.625 and Permit Condition 1.7.

The boiler is also subject to fuel burning emissions limitations of IDAPA 58.01.01.676-677. Specifically, the permittee shall not discharge to the atmosphere from any fuel-burning equipment, particulate matter in excess of 0.20 gr/dscf of effluent gas corrected to 8% oxygen by volume for wood products.

Fuel-burning equipment is defined by IDAPA 58.01.01.006.41 as: *"Any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer."* This definition leads to the conclusion that the source consists of two point sources, which must meet the fuel burning equipment emission limitation. One is the primary EFB stack and the other is the disengagement chamber baghouse stack. Both stacks are associated with the boiler and both control emissions originating from the combustion of wood waste.

#### **5.1.2.2 Compliance Demonstration Method**

Compliance demonstration methodology for visible emissions is discussed in this memorandum at Section 4.2.3.2.

A PM performance test was conducted on the boiler's exhaust (primary EFB stack) in August 1992. The source was found to be in compliance with the grain-loading emissions limitation (DEQ AFS Compliance Source Data Report). The emissions test results presented by LP show that PM emissions averaged 0.03 gr/dscf at 8% oxygen.

The permittee will be required to develop an Operations and Maintenance (O&M) manual that gives operating ranges for critical EFB operating parameters. The manual must address voltage and amperes operating ranges for the filter bed and ionizer, and pressure drop operating ranges across the EFB. The manual must also address voltage and amperage monitoring procedures to determine whether the ionizer is operating as designed. The manual must be updated after each performance test and is incorporated by reference as Permit Conditions 2.6 and 2.7.

#### **5.1.2.3 Monitoring**

The permittee is required to monitor and record filter bed and ionizer voltage and amperes and the pressure drop across the filter bed each hour. See Permit Condition 2.8.

#### **5.1.2.4 Testing**

The permit requires performance testing of the EFB primary stack and EFB disengagement chamber baghouse stack at least once during the first 12 months of the permit's term. If the PM measured in the compliance test is less than or equal to 75% of the PM emissions limits in this permit, no further testing shall be required under this section of the permit. If the PM measured during the compliance test is greater than 75%, but less than or equal to 90% of the permitted PM emissions limits in this permit, a second test shall be required in the third year of issuance of this permit. If the PM measured during the compliance test is greater than 90% of the permitted PM emissions limits in this permit, the permittee shall conduct a compliance test annually.

#### **5.1.2.5 Recordkeeping**

The permittee is required to monitor and record filter-bed and ionizer voltage and amperes and the pressure drop across the filter bed each hour.

In addition, General Provision 6.30 requires the permittee maintain sufficient record keeping to assure compliance with all of the terms and conditions of this operating permit. Recording of monitoring information shall include, but not be limited to: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to DEQ representatives upon request.

#### **5.1.2.6 Reporting**

Reporting requirements for the performance test are specified in IDAPA 58.01.01.157. This section includes requiring the submittal of source test results to DEQ within 30 days of conducting the test.

Tier I Operating Permit General Provision 6.21 requires an annual compliance certification of all permit conditions.

## **5.2. Process Weight PM Emissions Limitations**

### **5.2.1. Emission Unit Description**

The process weight PM limitations of IDAPA 58.01.01.700 establish hourly emissions rate limits depending on the process weight of the process equipment. Process equipment is defined at IDAPA 58.01.01.006.79 as: *"Any equipment, device or contrivance for changing any materials whatever or for storage or handling of any materials, and all appurtenances thereto, including ducts, stack, etc., the use of which may cause any discharge of an air pollutant into the ambient air but not including that equipment specifically defined as fuel-burning equipment or refuse-burning equipment."*

### **5.2.2. Permit Requirement**

No person shall emit to the atmosphere from any process or process equipment PM emissions greater than that allowed by the process weight PM emissions limitations of IDAPA 58.01.01.700.

#### **5.2.2.1 Applicability**

Process weight PM emissions limitations apply to process or process equipment. Process or process equipment are devices that change material, store material or handle material. In IDAPA 58.01.01.700.02, it states that no process or process equipment shall be required to have an emission limit of less than 1.0 lb/hr. Any process that has a process weight rate of less than 175 lb/hr is a process that would not require a PM emissions limitation because the corresponding PM process weight rate emissions rate limit would be less than 1.0 lb/hr.

### **Point Sources**

Process weight emission rate limitations are not dependent on whether or not the equipment or device emits through a stack (point). Rather, each piece of process equipment has an independent emission rate limit based on the equations given in IDAPA 58.01.01.700. Where pneumatic conveyance systems are used many processes are vented through one emission point. Since each individual piece of process equipment has its own emission rate limit, several process rates and emission rate limits must be aggregated to determine the allowable emission rate limit from the shared emission point.

Listed below is each point source, which has several individual processes, which combine emissions through one point source. The name of the emission point is given, and then the process equipment, which emits through the point, is listed.

- **Green Chip Surge Bin Emission Point**

- Stud mill scrap chipper (2)

- Lilly pad chipper

- Screen

- Cyclone

- **Shavings Baghouses**

- Planers

- Line 1 hog

- Line 2 hog

- Cyclone (2)

Note that the wood waste handling cyclones are process equipment as defined by the rules because they are a "...device or contrivance for changing any materials whatever or for storage or handling of any materials..." However, the baghouses associated with the shavings bins are not considered process equipment because they are primarily air pollution control devices and are not "...for changing any materials whatever or for storage or handling of any materials..."

### **Fugitive Sources**

The following sources have been identified as process equipment, which emit PM in the form of fugitive emissions, which in turn are subject to process weight rate emission limitations:

- Green chip bin target box
- Green chip bin truck loading
- Green chip bin rail car loading
- Fuel bin target box #1
- Fuel bin target box #2
- Sawdust truck bin target box
- Hog fuel bin target box
- Stud mill scrap chipper
- Destoner
- Bark hog
- Log sawing
- Debarking
- Fuel mixing bin

### **5.2.2.2 Compliance Demonstration Method**

#### **Point Sources**

Compliance with process weight PM emissions limitations was determined for all applicable equipment by using published emission factors. Compliance was demonstrated for all process equipment at all obtainable processing rates. A complete discussion follows.

#### **Green Chip Surge Bin Emission Point**

The process weight emissions limitations apply to four distinct processes, which emit PM through the green chip surge bin emission point. These source are: stud mill chipper, lilly pad chipper, screen and cyclone.

Each process is regulated by one of the following the equations:

No person shall emit to the atmosphere from any process or process equipment operating prior to October 1, 1979, particulate matter in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour:

- a. If PW is less than 17,000 lb/hr,  
 $E = 0.045(PW)^{0.60}$

- b. If PW is equal to or greater than 17,000 lb/hr,  
 $E = 1.12(PW)^{0.27}$

No person shall emit into the atmosphere from any process or process equipment operating on or after October 1, 1979, PM in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour:

- a. If PW is less than 9,250 lb/hr,  
 $E = 0.045(PW)^{0.60}$
- b. If PW is equal to or greater than 9,250 lb/hr,  
 $E = 1.01(PW)^{0.25}$

The emission rate limit for the emission point is the sum of the following:

$$E(\text{mill chipper}) + E(\text{pad chipper}) + E(\text{screen}) + E(\text{cyclone})$$

The application states 225,000 tons of chips are processed through this system per year. These processes operate 6240 hr/yr.

All of the chips are processed through two (screen and cyclone) of the four devices.

The average hourly process weight rate is 72,115 lb/hr for both the screen and the cyclone. The process weight PM emissions limitations from these two sources are:

$$E(\text{screen}) = 1.12(72,115)^{0.25} = 18.35 \text{ lb/hr}$$
$$E(\text{cyclone}) = 1.12(72,115)^{0.25} = 18.35 \text{ lb/hr}$$

The emission rate limit from the point then becomes the total of all allowable emissions by the process weight PM emissions limitation for all equipment is the following:

$$E(\text{mill chipper}) + E(\text{pad chipper}) + 18.35 + 18.35 \text{ or;} \\ E(\text{mill chipper}) + E(\text{pad chipper}) + 36.7 \text{ lb/hr}$$

The emission rate limit from the point source is then greater than 36.7 lb/hr. The process weight emissions limitations from the mill chipper and pad chipper have not been determined at this point.

Regardless, compliance with the total process weight rate emission limit for these sources, which emit through one point, is demonstrated by using Idaho DEQ and Oregon DEQ published emission factors.

Emission factor = 0.5 lbs/ton(dry) (medium efficiency cyclone)  
Cyclone throughput = 72,115 lb/hr (wet) or 50,480 lb/hr (dry) [assuming 30% moisture]

Estimated emissions from the point of emission are then:

$$0.5 \text{ lb/ton} * (50,480 \text{ lb/hr}) / 2000 \text{ lb/ton} = 12.6 \text{ lb/hr}$$

Compliance is clearly demonstrated without the need to determine the exact process weight rate emission limit from the mill chipper and pad chipper. The applicable requirement is known and given in the permit for all sources discussed here and compliance has been demonstrated.

### Shavings Bin Emission Point

Emissions from six distinct processes emit through the shavings bin emission point. These are: two planers, two hogs and two cyclones.

No person shall emit to the atmosphere from any process or process equipment operating prior to October 1, 1979, PM in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in Lb/hr, and PW is the process weight in pounds per hour:

- a. If PW is less than 17,000 lb/hr,  
 $E = 0.045(PW)^{0.60}$
- b. If PW is equal to or greater than 17,000 lb/hr,  
 $E = 1.12(PW)^{0.27}$

No person shall emit into the atmosphere from any process or process equipment operating on or after October 1, 1979, particulate matter in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour:

- a. If PW is less than 9,250 lb/hr,  
 $E = 0.045(PW)^{0.60}$
- b. If PW is equal to or greater than 9,250 lb/hr,  
 $E = 1.12(PW)^{0.25}$

The emission rate limit for the emission point is the sum of the following:

$$E(\text{planer 1}) + E(\text{planer 2}) + E(\text{hog 1}) + E(\text{hog 2}) + E(\text{cyclone 1}) + E(\text{cyclone 2})$$

The regulations specify that each device has its own process weight PM emissions limitation. As a practical matter, and for compliance demonstration purposes only, it is assumed that there is one planer, one hog and one cyclone. This is a conservative assumption, because allowable emissions are greater if each device is treated separately rather than as one. Based on this conservative assumption, the emission rate limit for the emission point is the sum of the following:

$$E(\text{planers}) + E(\text{hogs}) + E(\text{cyclones})$$

Calculating process weight rate emission limit for planers.

The planer mill's annual production is 254 MMBf/yr, or 277,368 T/yr. The planer mill operates 8760 hr/yr. Hourly production is then 31.67 tons ( $277,368 \text{ T/yr} \div 8,760 \text{ hr/yr}$ ).

So using the most restrictive process weight equation:

$$E(\text{planers}) = 1.12(63,340)^{0.25} = 17.76 \text{ lb/hr}$$

The process weight for the hogs and the cyclones are identical. Each processes 70,000 T/yr and the planer mill operates 8760 hr/yr. Hourly production is then eight tons, or 16,000 pounds, per hour.

$$E(\text{hogs}) = E(\text{cyclones}) = E = 1.12(16000)^{0.25} = 12.6 \text{ lb/hr}$$



Then:  $E(\text{planers}) + E(\text{hogs}) + E(\text{cyclones}) = 17.76 \text{ lb/hr} + 12.6 \text{ lb/hr} + 12.6 \text{ lb/r} = 42.96 \text{ lb/hr}$

Emission estimates based on Idaho DEQ and Oregon DEQ emission factors for cyclones with baghouses are:

Emission Factor = 0.005 gr/cf; Q = 29,317 cfm

Estimated PM emissions = 1.25 lb/hr.

Compliance is easily demonstrated at all process weights.

### **Dry Kiln Emission Point**

Calculations showing process weight rate emission limitations for the dry kilns and estimated PM are in the appendix. Compliance with PM process weight emissions limitations from lumber drying kilns should be self-evident. However, the calculations are provided.

### **Fugitive Sources**

Compliance with fugitive source process weight emissions limitations is demonstrated through reasonable control of fugitive emissions. According to the source file for this facility there have been no fugitive emission complaints, and DEQ inspection records indicate compliance with the requirement to reasonably control fugitive emissions. Additionally, emission estimates show compliance.

Appendix documents include emission estimates and process weight rate emission limits for various process weight rates for the following fugitive sources:

Yard waste destoner	Bark hog
Fuel bin #1 target box	Fuel bin #2 target box
Sawdust truck bin target box	Hog fuel truck bin target box
Green chip truck loading	Green chip rail car loading
Green chip bin target box	Studmill scrap chipper
Log sawing	Log debarking

The calculations very conservatively demonstrate compliance.

#### **5.2.2.3 Monitoring**

Monitoring requirements for process weight rate emission limits are determined based on a comparison of allowable emission rates versus estimated emissions and the practical ability to obtain sufficient, reliable, and relevant data to represent compliance with the underlying permit limit.

### **Fugitive Emissions**

In the case of fugitive emissions, conservative emission estimates are low relative to allowable emissions. In addition, the general inability to obtain sufficient, reliable, and relevant data to represent statistically valid emissions estimates leads to the conclusion that monitoring to assure fugitive emissions are reasonably controlled is sufficient for determining compliance with process weight rate limits.

As a surrogate for fugitive emissions source process weight rate monitoring, Permit Condition 1.4 requires weekly monitoring of fugitive emissions to demonstrate whether

reasonable control of fugitive emissions is occurring. Furthermore, published emission factors demonstrate compliance with the emission rate limits.

Permit Condition 1.4 states:

The permittee shall conduct a quarterly facility-wide inspection of potential fugitive emissions sources, during daylight hours and under normal operating conditions, to ensure that the methods used to reasonably control fugitive emissions are effective. If fugitive emissions are not being reasonably controlled, the permittee shall take corrective action as expeditiously as practicable. The permittee shall maintain records of the results of each weekly fugitive emissions inspection. The records shall include, at a minimum, the date of each inspection and a description of the following: the permittee's assessment of the conditions existing at the time fugitive emissions are present (if observed), any corrective action taken in response to the fugitive emissions, and the date the corrective action was taken.

#### **Point Source Emissions**

Three point sources of emissions have been determined to be applicable to process weight PM emissions limitations: the kilns, shavings bin cyclone/baghouse stack and the green chip surge bin cyclone stack. Estimated PM emissions from the dry kilns are negligible and no monitoring is required. Allowable emissions from normal operations of the shavings bin cyclone/baghouse are greater than 42 lb/hr, and emissions from the green chip surge bin cyclone are greater than 37 lb/hr. Actual emissions of highly visible wood waste at this rate would cause opacity in excess of 20%. Compliance personnel at DEQ experienced with PM source tests, opacity observations, and the wood products industry concurs with this assumption. Because of this, and the fact that estimated emissions are very much lower than allowable emissions, monitoring to obtain sufficient, reliable, and relevant data to represent compliance with the underlying permit limit has been determined to be visible emissions monitoring.

For equipment that emits through a stack, chimney, vent, or other functionally equivalent device, Permit Condition 1.6 requires monitoring of visible emissions. If any visible emissions are present from any point of emission the permittee shall take appropriate corrective action as expeditiously as practicable. If opacity is greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period the permittee shall take all necessary corrective action and report the exceedance in the annual compliance certification and in accordance with IDAPA 58.01.01.130-136.

#### **5.2.2.4 Testing**

In accordance with Permit Condition 1.6, the permittee shall conduct a monthly facility-wide inspection of potential visible emissions sources, during daylight hours and under normal operating conditions. If opacity is greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period the permittee shall take all necessary corrective action and report the exceedance in the annual compliance certification and in accordance with IDAPA 58.01.01.130-136. If four consecutive readings indicate that opacity is below 20%, the frequency of observations decreases to once per quarter. If any quarterly Method 9 observation indicates opacity is greater than 20%, observation frequency reverts to monthly.

#### **5.2.2.5 Recordkeeping**

The permittee shall maintain records of the results of each quarterly fugitive emission inspection. The records shall, at a minimum, include the date of each inspection and a description of the following: the permittee's assessment of the conditions existing at the time fugitive emissions are present (if observed), any corrective action taken in response to

the fugitive emissions, and the date the corrective action was taken. Additionally, in accordance with Permit Condition 1.3, the permittee shall maintain records of all fugitive emissions complaints received. The permittee shall take appropriate corrective action as expeditiously as practicable after receipt of a valid complaint. The records shall include, at a minimum, include the date each complaint was received and a description of the following: the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

The permittee shall maintain records of the results of each monthly visible emission (point source) inspection. The records shall include, at a minimum, the date of each inspection and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.

The permittee shall maintain sufficient record keeping to assure compliance with all of the terms and conditions of this operating permit. Recording of monitoring information shall include, but not be limited to: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available to DEQ representatives upon request in either hard copy or electronic format.

#### **5.2.2.6 Reporting**

Tier I Operating Permit General Provision 6.21 requires an annual compliance certification of all permit conditions.

- The permittee shall submit compliance certifications during the term of the permit for each emissions unit to the EPA and DEQ as follows:
- Compliance certifications for all emissions units shall be submitted annually beginning 12 months from the permit issuance date, or more frequently if specified by the underlying applicable requirement or elsewhere in this permit by DEQ;
- The compliance certification for each emissions unit shall address all of the terms and conditions contained in the Tier I operating permit that are applicable to such emissions unit including emissions limitations, standards, and work practices;
- The compliance certification shall be in an itemized form providing the following information (provided that the identification of applicable information may cross-reference the permit or previous reports as applicable):
  - The identification of each term or condition of the Tier I operating permit that is the basis of the certification;
  - The identification of the method(s), or other means, used by the owner or operator for determining the compliance status with each term and condition during the certification period, and whether such methods or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the methods and means required by this Tier I operating permit. If necessary, the owner or operator shall identify any other material information that must be

included in the certification to comply with Section 113(c)(2) of the CAA, which prohibits knowingly making a false certification or omitting material information;

- The status of compliance with the terms and conditions of the permit for the period covered by the certification. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance, any periods during which compliance is required and in which an excursion or exceedance as defined under 40 CFR Part 64 occurred;
  - Such other facts as DEQ may require to determine the compliance status of the source.
- All original compliance certifications shall be submitted to DEQ and a copy of all compliance certifications shall be submitted to the EPA.

## **6. INSIGNIFICANT ACTIVITIES**

### **Insignificant Activities**

Listed below are the insignificant activities, which the source identified in accordance with 58.01.01.317.b.i.

Diesel Storage Tank - There is one 10,000-gallon aboveground diesel storage tank at the Moyie Springs mill used to supply fuel. The operation, loading, and unloading of storage tanks with capacities of 10,000 gallons or less, containing a VOC with a vapor pressure less than 80 mm Hg, is defined as an insignificant activity by IDAPA 58.01.01.317.b.i.3.

Propane Storage Tank - The facility stores propane in a 1,000 gallon pressurized storage tank. In accordance with IDAPA 58.01.01.317.b.i.4, the operation, loading and unloading, or storage of butane, propane, or liquefied petroleum gas (LPG), in storage tanks or vessels under 40,000 gallons are insignificant activities.

Degreasing Operation - The facility operates metal-parts cleaner. This activity is insignificant in accordance with IDAPA 58.01.01.b.i.d. and 58.01.01.b.i.30.

Operation, loading and unloading of storage tanks and storage vessels, with lids or other appropriate closure and less than 260 gallon capacity, heated only to the minimum extent to avoid solidification is an insignificant activity. Additionally, emission units or activities with emissions less than or equal to 10% of the levels contained in IDAPA 58.01.01.006 of the definition of significant and no more than one ton per year of any hazardous air pollutant is an insignificant activity.

Lumber End Coating Operation - After lumber is planed, stacked and bundled, a seal is applied to the ends of the lumber to provide protection from water. Surface coating operations containing less than 1% volatile organic compounds are listed in IDAPA 58.01.01.317.b.25 as an insignificant activity. The end seal used in the Moyie Springs facility contains VOCs less than 1% both on volume and weight bases. Therefore, the end seal emissions source is considered to be an insignificant activity.

Ink Stamping - After lumber is planed it is graded and labeled using an ink stamp. This activity is insignificant in accordance with IDAPA 58.01.01.317.b.i.12.

Printing operations using less than two gallons/day of ink are listed as insignificant by this section.

Welding Operation - The facility operates seven welders. Since welding rod usage is less than two tons per day, this activity qualifies as an insignificant activity in accordance with IDAPA 58.01.01317.b.i.9.

Kerosene-Fired Pressure Washer - The facility uses a kerosene-fired pressure washer for cleaning purposes. The burners are rated for 540,000 Btu/hr and are listed as insignificant activities in accordance with IDAPA 58.01.01.317.b.i.7.

Waste Paper Incinerator - The mill operates a small waste paper incinerator that is defined as an insignificant activity in accordance with IDAPA 58.01.01.317.b.i. because the emission unit is less than 500,000 Btu/hr and burns waste paper.

## **7. COMPLIANCE SCHEDULE**

### **7.1 Compliance Plan and Schedule**

Pursuant to information voluntarily disclosed by Louisiana-Pacific, the DEQ and LP-Moyie Springs have identified the following sources as sources not in compliance with IDAPA 58.01.01.200 through 223 at the time of permit issuance because of failure to obtain a permit to construct upon construction or modification:

- the 1984 #4 dry kiln addition
- 1988 dry kiln extensions
- 1989 Stetson planer installation
- 1996 studmill 2x4 stacker process change

In addition, the permittee has the continuing responsibility to submit any supplementary information needed, including information for any other sources, in accordance with IDAPA 58.01.01.315.

Because these sources have been constructed and/or modified without a permit, the Department has determined that the most appropriate course of action to bring the facility into compliance with the requirements is to issue a single facility-wide permit that:

- (a) Specifically establishes the operating terms and conditions required by the PTC rules for sources for which a permit was required but not obtained; and
- (b) Collectively addresses the operating terms and conditions required to demonstrate that emissions from all sources at the facility will not contribute to the violation of an applicable standard.

The Department is, therefore, requiring a combined Tier II operating permit (Tier II) and PTC (hereafter referred to as the facility-wide permit). The Tier II for LP-Moyie Springs is required in accordance with IDAPA 58.01.01.401.03 based on the determination that specific emission standards, or requirements on operation or maintenance are necessary to ensure compliance with any applicable emission standard or rule. The facility-wide permit will contain the terms and conditions necessary for the facility to comply with the applicable requirements of IDAPA 58.01.01.400 through 410.

The facility-wide permit will also include all of the terms and conditions for new or modified sources. For those sources within the facility that have existing PTCs, the terms and conditions will be incorporated into the new permit. For sources at the facility for which a PTC was required but not obtained, the permit will establish new emission limits, controls, and other requirements in accordance with the applicable portions of IDAPA 58.01.01.200 through 223. The new facility-wide permit will address all applicable emission standards, required emission control technology, and demonstrate

that the facility will not cause or contribute to any ambient air quality standard or applicable prevention of significant deterioration (PSD) increment.

The combined Tier II and PTC is different than, and separate from, the Tier I in that the new permit will establish new applicable emission limits, controls, and other requirements that are as stringent as the requirements contained in or enforceable under the state implementation plan. This permit will create new underlying requirements for sources that are in existence at the time the initial Tier I is issued. A Tier I permit modification will, therefore, need to be issued concurrently with the issuance of the new facility-wide permit.

The applicable requirements established in the facility-wide permit pursuant to IDAPA 58.01.01.200 through 223 shall be clearly identified as such in the permit and shall remain in full force and effect until such time as they are modified or terminated in accordance with the procedures for issuing a PTC.

The specific compliance schedule elements and milestones to achieve compliance are described below.

Permit Condition 4.2. The permittee will be required to submit a complete permit application with all supporting information and documentation for issuance of a facility-wide permit in accordance with IDAPA 58.01.01.400 through 410 no later than 18 months from the final issuance date of the Tier I. Eighteen months is needed in order to obtain a minimum of one years meteorological data necessary to complete a PSD permit application (refer to IDAPA 58.01.01.405.01). A facility-wide permit is required by the Department to establish the terms and conditions necessary to comply with an applicable rule or standard. The Department shall consider the emissions from all sources at the facility and the specific requirements for individual sources in preparing the facility-wide operating permit.

The permit application shall clearly identify all emissions units at the facility - listing currently permitted emissions units, exempted units for which the facility maintains exemption documentation, units constructed before and not modified since January 24, 1969, and units constructed and/or modified since January 24, 1969 without a permit or construction approval from the Department. Application information shall provide facility information and emissions data for all emissions units in accordance with IDAPA 58.01.01.402 and 403 and shall include a demonstration that the sources at the facility will not cause or significantly contribute to a violation of the NAAQS or of any applicable PSD increment.

The application submittal deadlines have been set to reasonably accommodate updating and organizing the emissions unit descriptions and emissions data, and conducting ambient air quality modeling for all sources. Applications that are deemed or remain incomplete beyond the 180-day milestone shall constitute a violation of this permit condition.

Permit Condition 4.3. In addition to the information submitted under Permit Condition 4.2, the permittee is required to submit all of the information necessary to address the applicable requirements for PTCs in accordance with IDAPA 58.01.01.200 through 223 for the construction and/or modification of sources for which the permittee was required but did not obtain a PTC. The information must include all information to address the additional permit requirements for new major facilities or major modifications where construction without enforceable limits may have triggered PSD or nonattainment new source review (NSR) requirements.

This data must be submitted with the complete permit application required under Permit Condition 4.2 in order to issue a single combined permit. The information is, therefore,

due no later than 18 months from the final issuance date of the Tier I. Failure to include complete information for addressing the PTC requirements within the required timeframe shall constitute a violation of this permit condition.

Permit Condition 4.4. If through the development of the facility-wide permit, any other source or sources are identified that should have obtained a PTC or PTC modification and for which the applicant did not include the information under Permit Condition 4.3, a supplemental application that contains all of the information necessary to address the applicable requirements for PTCs in accordance with IDAPA 58.01.01.200 through 223 shall be submitted no later than 30 days after receiving written notification from the Department. Supplemental applications that are deemed or remain incomplete beyond the 30-day milestone shall constitute a violation of this permit condition.

Permit Condition 4.5. If the permittee can clearly demonstrate that the data required for the facility-wide permit cannot be collected and organized within the specified timeframe, the permit application submittal deadlines may be extended at the discretion of the Department for a specific time period not to exceed one year. For the Department to consider a request for an extension without jeopardizing the terms and conditions of the permit, the request must be submitted by the facility no later than the midpoint of the compliance milestone timeline. The request must be submitted in writing with a clear demonstration why the data cannot reasonably be submitted within the specified timeframe. An example of information that might justify an extension is the absence of ambient monitoring data required to complete a PSD application.

The Department will review the request and the justification and approve or disapprove the extension in writing. The responsibility for meeting the schedule if the Department has not issued a written extension belongs to the permittee.

Permit Condition 4.6. The Department intends to draft and issue a single facility-wide permit to bring the permittee back into compliance. This permit will fully meet all of the applicable requirements in the *Rules* and the federally approved state implementation plan. Because the permit will contain both elements of PTCs and of Tier II permits, it will clearly identify the origin and basis for each term and condition. The terms and conditions established pursuant to the PTC requirements shall be clearly marked and shall not expire with any Tier II operating permit term. The terms and conditions established pursuant to the Tier II requirements shall be clearly marked and shall be implemented in accordance with the Tier II process. The procedures for issuing a PTC in IDAPA 58.01.01.209 shall be followed concurrently with the procedures for issuing a Tier II in IDAPA 58.01.01.404. The permit shall clearly state that any future modification of a term or condition in the permit shall be subject to the appropriate procedural requirements on which the original term or condition was based.

Permit Condition 4.7. Within 30 days after the Department determines the facility-wide permit application complete, the permittee will need to request a significant permit modification to the Tier I in accordance with IDAPA 58.01.01.382.02. A significant Tier I modification will require the payment of fees in accordance with IDAPA 58.01.01.389.06.b.iii. Because the information in a complete application as required under Permit Condition 4.2 and 4.3 should contain all of the technical information necessary to modify the Tier I, the Department may waive portions of the standard application requirements as appropriate provided the permittee certifies the completeness, truth, and accuracy of all documents submitted.

The Tier I modification shall be processed concurrently with the facility-wide permit in accordance with the procedures for issuing a Tier I in IDAPA 58.01.01.360 through 369.

Permit Condition 4.8. The permittee shall be required to submit a progress report at the end of each calendar quarter (January 1, April 1, July 1, and October 1) of each year

stating when each of the conditions of each milestone were or will be achieved. A detailed explanation is required when milestones were not or will not be achieved in accordance with the schedule.

Permit Condition 4.9. The incorporation of the compliance schedule into the Tier I operating permit does not sanction noncompliance with the applicable rules.

**8. REGISTRATION FEES**

This facility is a major facility as defined by IDAPA 58.01.01.008.10, and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.387.

**9. RECOMMENDATION**

Based on the Tier I operating permit application and review of the federal regulations and state rules, staff recommends that DEQ issue a final Tier I operating permit to LP for the Moyie Springs facility.

MME/DP:tk G:\Air Quality\Stationary Source\SS Ltd\T1\LP Moyie Springs\Final\LP Moyie Final Tm.Doc

Attachments

cc: Tom Harman, Coeur d'Alene Regional Office  
Sherry Davis, Technical Services  
Laurie Kral, EPA Region 10  
Joan Lechtenberg, Air Quality Division



## **APPENDIX**

**Louisiana-Pacific (LP), Moyie Springs**

**Yard Waste Destoner & Bark Hog**

Yard Waste Destoner and Bark Hog Annual Throughput (tons)*	Hours of Operation	Emission Factor (lb/ton) Processed (see note)	Particulate Matter Emissions (lb/hr)	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
<b>95000.00</b>	6240.00	0.50	7.61	18.19
90000.00	6240.00	0.50	7.21	17.92
85000.00	6240.00	0.50	6.81	17.65
75000.00	6240.00	0.50	6.01	17.06
50000.00	6240.00	0.50	4.01	15.00
25000.00	6240.00	0.50	2.00	9.90
100000.00	6240.00	0.50	8.01	18.44
105000.00	6240.00	0.50	8.41	18.69

Note: Assumed destoner and hog emissions could be represented by the AP-42 Emission Factor for primary crushing of low moisture ore. This should be a conservative method of estimating emissions. No emission factors were found for destoners and bark hogs.

\* Assumed all fuel feed to the boiler goes through the destoner and bark hog. This is very conservative assumption.

\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr =  $.045(PWR)^{0.6}$

Emission (lb/hr), PWR > 17000 lb/hr =  $1.12(PWR)^{0.27}$

Bold values represent the facility projected process weight rate.

**Louisana-Pacific (LP), Moyie Springs**

**Studmill Scrap Chipper (Green Line)**

Annual Chip Load Out (tons/yr)	Hours of Operation Green End	Emission Factor * lb/ton@50%moisture	Particulate Matter Emissions (lb/hr) Controlled Eff. 80% Indoors	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
<b>225000.00</b>	6240.00	1.67	12.02	22.98
250000.00	6240.00	1.67	13.35	23.62
275000.00	6240.00	1.67	14.69	24.23
300000.00	6240.00	1.67	16.03	24.81
100000.00	6240.00	1.67	5.34	18.44
50000.00	6240.00	1.67	2.67	15.00
25000.00	6240.00	1.67	1.34	9.90
10000.00	6240.00	1.67	0.53	5.71
5000.00	6240.00	1.67	0.27	3.77

\* Idaho DEQ & Oregon DEQ emission factor for medium efficiency chip cyclone for bone dry tons converted to uncontrolled emissions for wood with 50% moisture (0.5 lb/BDT)  
medium efficiency cyclone = 80% control

\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr =  $.045(PWR)^{0.6}$

Emission (lb/hr), PWR > 17000 lb/hr =  $1.12(PWR)^{0.27}$

Bold values represent the facility projected process weight rate.

**Louisiana-Pacific (LP), Moyie Springs**

**Fuel Mix Bin Cyclone - Point Source**

Annual Flue Usage (tons/year)	Hours of Operation	Particulate Matter Emission Factor (gr/cfm) *	Cyclone Flow (cfm)	Particulate Matter Emissions (lb/hr)	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
<b>95000.00</b>	8760.00	0.03	29317.00	7.54	16.60
90000.00	8760.00	0.03	29317.00	7.54	16.36
85000.00	8760.00	0.03	29317.00	7.54	16.11
75000.00	8760.00	0.03	29317.00	7.54	15.57
50000.00	8760.00	0.03	29317.00	7.54	12.24
25000.00	8760.00	0.03	29317.00	7.54	8.07
100000.00	8760.00	0.03	29317.00	7.54	16.83
105000.00	8760.00	0.03	29317.00	7.54	17.05

\* DEQ emission factor

**Bold Fuel Usage** represents facility's expected usage

**Louisiana-Pacific (LP), Moyle Springs**

**Green Chip Truck & Rail Car Loading**

Annual Chip Load Out (tons/yr) Assume 30% H2O	Hours of Operation Green End	Particulate Matter Emission Factor Pounds Per Ton Handled*	Particulate Matter Estimated Emissions (lb/hr)	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
<b>225000</b>	6240	2	20.19	22.96
230000	6240	2	20.64	23.09
240000	7600	2	17.68	22.15
150000	6240	2	13.46	20.58
100000	6240	2	8.97	18.44
50000	6240	2	4.49	15.00
25000	6240	2	2.24	9.90
10000	6240	2	0.90	5.71
5000	6240	2	0.45	3.77

\*EPA AIRS (.4 adjustment factor added in emission calculation as suggested by emission factor documentation), Conservative because was used here would include dirt any other debris associated with waste wood which is not associated with green chips from sawmills

\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr = .045(PWR)<sup>0.6</sup>

Emission (lb/hr), PWR > 17000 lb/hr = 1.12(PWR)<sup>0.27</sup>

**Bold values represent the facility projected process weight rate.**

## Louisiana-Pacific (LP), Moyie Springs

### Green Chip Cyclone - Point Source

Annual Chip Load Out (tons/yr) Assume 30% H <sub>2</sub> O	Hours of Operation Green End	Particulate Matter Emission Factor Pounds Per Bone Dry Tons*	Particulate Matter Estimated Emissions (lb/hr)	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
225000	6240	0.5	12.62	22.96
250000	6240	0.5	14.02	23.62
275000	6240	0.5	15.42	24.23
300000	6240	0.5	16.83	24.81
100000	6240	0.5	5.61	18.44
50000	6240	0.5	2.80	15.00
25000	6240	0.5	1.40	9.90
10000	6240	0.5	0.56	5.71
5000	6240	0.5	0.28	3.77

\* Idaho DEQ & Oregon DEQ emission factor for medium efficiency chip cyclone for bone dry tons

\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr =  $.045(\text{PWR})^{0.6}$

Emission (lb/hr), PWR > 17000 lb/hr =  $1.12(\text{PWR})^{0.27}$

## Louisana-Pacific (LP), Moyie Springs

<b>Green Chip Bln Target Box</b>
----------------------------------

Annual Chip Load Out (tons/yr) Assume 30% H2O	Hours of Operation Green End	Particulate Matter Emission Factor Pounds Per Bone Dry Tons*	Particulate Matter Estimated Emissions (lb/hr)	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
<b>225000</b>	6240	0.1	2.52	22.96
250000	6240	0.1	2.80	23.62
275000	6240	0.1	3.08	24.23
300000	6240	0.1	3.37	24.81
100000	6240	0.1	1.12	18.44
50000	6240	0.1	0.56	15.00
25000	6240	0.1	0.28	9.90
10000	6240	0.1	0.11	5.71
5000	6240	0.1	0.06	3.77

\* Idaho DEQ & Oregon DEQ emission factor for medium efficiency chip cyclone for bone dry tons

\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr =  $.045(\text{PWR})^{0.6}$

Emission (lb/hr), PWR > 17000 lb/hr =  $1.12(\text{PWR})^{0.27}$

Bold values represent the facility projected process weight rate.

**Louisiana-Pacific (LP), Moyle Springs - Point Source**

**Dry Klin**

Annual Production MMbf	Emission Factor* Particulate Matter (lb/1000bdf)	Particulate Matter Emissions (lb/hr) Assuming 8760 hr/yr	Specific Gravity of wood (Assumption)	Tons of Wood Dried	Process Weight Rate Emission Limit** (lb/hr)
114	0.33	4.29	0.42	124488	17.85
120	0.33	4.52	0.42	131040	18.10
140	0.33	5.27	0.42	152880	18.87
254	0.33	9.57	0.42	277368	22.16
305	0.33	11.49	0.42	333080	23.29
75	0.33	2.83	0.42	81900	15.94
65	0.33	2.45	0.42	70980	15.10
55	0.33	2.07	0.42	60060	13.66
45	0.33	1.70	0.42	49140	12.11
35	0.33	1.32	0.42	38220	10.42

\* EPA AIRS, AP-42

\*\* PWR Emission limit (calculated assuming 8760 hr/yr)

Emission (lb/hr), PWR < 17000 lb/hr = .045(PWR)^0.6

Emission (lb/hr), PWR > 17000 lb/hr = 1.12(PWR)^0.27

Bold values represent the facility projected process weight rate.



**Louisiana-Pacific (LP), Moyie Springs**

**Log Debarking**

Annual Throughput (tons)	Annual Hours of Operation	Emission Factor (lb/ton)	Emission Factor Source	Estimate Particulate Matter Emissions (lb/hr)	Particulate Matter Process Weight Rate Emission Limit* (lb/hr)
<b>585000</b>	8760	0.024	EPA AIRS	1.60	27.11
450000	8760	0.024	EPA AIRS	1.23	25.26
500000	8760	0.024	EPA AIRS	1.37	25.99
600000	8760	0.024	EPA AIRS	1.64	27.30
7500	8760	0.024	EPA AIRS	0.02	3.92
10000	8760	0.024	EPA AIRS	0.03	4.66
20000	8760	0.024	EPA AIRS	0.05	7.06
40000	8760	0.024	EPA AIRS	0.11	10.70
100000	8760	0.024	EPA AIRS	0.27	16.83

\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr =  $.045(\text{PWR})^{0.6}$

Emission (lb/hr), PWR > 17000 lb/hr =  $1.12(\text{PWR})^{0.27}$

Bold values represent the facility projected process weight rate.

**Louisiana-Pacific (LP), Moyle Springs**

**Log Sawing**

Annual Production MMbf	Specific Gravity of wood (Assumption)	Tons of Wood Sawed	Emission Factor (lb/ton)	Emission Factor Source	Control Efficiency Indoor Operation	Emission Estimate (lb/hr) Controlled	Emission Estimate (lb/hr) Uncontrolled	Process Weight Rate Emission Limit* (lb/hr)
114	0.42	124488	0.35	EPA AIRS	80.00%	0.99	4.97	19.57
120	0.42	131040	0.35	EPA AIRS	80.00%	1.05	5.24	19.84
140	0.42	152880	0.35	EPA AIRS	80.00%	1.22	6.11	20.68
187	0.42	204204	0.35	EPA AIRS	80.00%	1.83	8.18	22.38
250	0.42	273000	0.35	EPA AIRS	80.00%	2.18	10.91	24.19
75	0.42	81900	0.35	EPA AIRS	80.00%	0.85	3.27	17.47
65	0.42	70980	0.35	EPA AIRS	80.00%	0.57	2.84	16.81
55	0.42	60060	0.35	EPA AIRS	80.00%	0.48	2.40	18.07
45	0.42	49140	0.35	EPA AIRS	80.00%	0.39	1.96	14.85
35	0.42	38220	0.35	EPA AIRS	80.00%	0.31	1.53	12.77
25	0.42	27300	0.35	EPA AIRS	80.00%	0.22	1.09	10.43
20	0.42	21840	0.35	EPA AIRS	80.00%	0.17	0.87	9.13
15	0.42	16380	0.35	EPA AIRS	80.00%	0.13	0.65	7.68
10	0.42	10920	0.35	EPA AIRS	80.00%	0.09	0.44	6.02

\* PWR Emission limit (calculated assuming 6240 hr/yr)

Emission (lb/hr), PWR < 17000 lb/hr = .045(PWR)<sup>0.6</sup>

Emission (lb/hr), PWR > 17000 lb/hr = 1.12(PWR)<sup>0.27</sup>

Bold values represent the facility projected process weight rate.

**Louisiana-Pacific (LP), Moyle Springs**

**Shaving Bin Baghouse**

Shavings Loadout (tons/yr) Assume 12% Moisture	Hours of Operation	Particulate Matter Emission Factor (lb/one dry ton)*	Particulate Matter Emission Factor (lb/one dry ton)**	Particulate Matter Emission estimates with baghouse(lb/hr)	Particulate Matter Emission estimates without baghouse (lb/hr)	Particulate Matter Process Weight Rate Emission Limit*** (lb/hr)
70000	8760	0.001	0.2	0.008	1.80	14.96
60000	8760	0.001	0.2	0.007	1.37	13.65
50000	8760	0.001	0.2	0.006	1.14	12.24
40000	8760	0.001	0.2	0.005	0.91	10.70
30000	8760	0.001	0.2	0.003	0.68	9.01
80000	8760	0.001	0.2	0.009	1.83	15.84
90000	8760	0.001	0.2	0.010	2.05	16.36
100000	8760	0.001	0.2	0.011	2.28	16.83
111000	8760	0.001	0.2	0.013	2.53	17.31

\* Oregon and Idaho DEQ emission factor for cyclone with baghouse

\*\* Oregon and Idaho DEQ emission factor for cyclone without baghouse

\*\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr = .045(PWR)\*0.8  
Emission (lb/hr), PWR > 17000 lb/hr = 1.12(PWR)\*0.27

**Louisiana-Pacific (LP), Moyie Springs**

**Shavings Cyclone - Point Source**

Shavings Loadout (tons/yr) Assume 12% Moisture	Hours of Operation	Particulate Matter Emission Factor (lb/bone dry ton)*	Particulate Matter Emission estimates (lb/hr)	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
70000	8760	0.2	1.60	14.98
60000	8760	0.2	1.37	13.65
50000	8760	0.2	1.14	12.24
40000	8760	0.2	0.91	10.70
30000	8760	0.2	0.68	9.01
80000	8760	0.2	1.83	15.84
90000	8760	0.2	2.05	16.36
100000	8760	0.2	2.28	16.83
111000	8760	0.2	2.53	17.31

\* Oregon and Idaho DEQ emission factor for cyclone with baghouse

\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr =  $.045(\text{PWR})^{0.6}$

Emission (lb/hr), PWR > 17000 lb/hr =  $1.12(\text{PWR})^{0.27}$

# **Louisiana-Pacific (LP), Moyie Springs**

**Target Box Associated With Bins: Fuel Bin #1 & #2, Sawdust Truck Bin, Hog Fuel Truck Bin**

	Throughput (ton/yr)	Annual Hours of Operation	Particulate Matter Emission Factor* (lb/ton-dry)	Particulate Matter Emissions (lb/hr)	Particulate Matter Process Weight Rate Emission Limit** (lb/hr)
Fuel Bin #1 & #2	<b>95000.00</b>	5200.00	0.10	1.83	19.11
Sawdust Truck Bin	<b>47000.00</b>	5200.00	0.10	0.90	15.80
Chip (hog) Truck Bin	<b>225000.00</b>	5200.00	0.10	4.33	24.11
	350000.00	5200.00	0.10	6.73	27.17
	40000.00	5200.00	0.10	0.77	14.64
	20000.00	5200.00	0.10	0.38	9.66

\* Oregon and Idaho DEQ Factor

\*\* PWR Emission limit

Emission (lb/hr), PWR < 17000 lb/hr = .045(PWR)^0.6

Emission (lb/hr), PWR > 17000 lb/hr = 1.12(PWR)^0.27

Bold values represent the facility projected process weight rate.

Species	Vol. Bd.ft.	VOCs as Carbon lb/mbf OSU	VOCs as Propane lb/mbf	Methanol lb/mbf	Formaldehyde lb/mbf	HCOC + MEOH lb/mbf	VOC as Carbon lb/mbf NCASI/ID	VOC as Propane lb/mbf
White Fir	73.33	0.26	0.32	0.122	0.0028	0.125	0.57	0.70
Douglas Fir	73.33	0.46	0.56	0.028	0.0013	0.024	0.7	0.86
Lodgepole	80.66	1.08	1.32	0.060	0.0040	0.064	na	na
Ponderosa	75.68	1.38	1.69	0.065	0.0029	0.068	1.86	2.27
Average		0.795	0.972	0.068	0.003	0.070	1.043	1.275
Worst Case		1.38	1.69	0.122	0.004	0.125	1.86	2.27

To change "VOC as carbon" EFs to "VOC as propane", multiply the "as carbon" factor by  $44/36 = 1.222222$   
 values adjusted to 12% moisture for p.pine and 15% moisture for other species  
 From OSU Forest Products Study (Milota), IFA Small-scale kiln study conducted Summer 2000  
 Ratios from Jeff Briggs 11/00

Facility Capacity (kilns)  $254 \times 10^6$  BF

Average Methanol Emission Factor =  $0.068 \frac{\text{lb}}{1 \times 10^3 \text{ BF}}$

$$\text{Methanol} = (254 \times 10^6 \text{ BF}) \left( \frac{0.068 \text{ lb}}{1 \times 10^3 \text{ BF}} \right) \left( \frac{1 \text{ ton}}{2000 \text{ lb}} \right) = 8.63 \frac{\text{ton}}{\text{yr}}$$

Average Formaldehyde Emission Factor =  $.003 \frac{\text{lb}}{1 \times 10^3 \text{ BF}}$

$$\text{Formaldehyde} = 0.38 \frac{\text{ton}}{\text{yr}}$$

MEMORANDUM

June 30, 1997

TO: A & HW Permit Engineers

FROM: Val Bohdan, Technical Engineer II  
Technical Services Bureau

THROUGH: Robert Wilkosz, Chief, Technical Services Bureau (TSB),  
Air and Hazardous Waste (A&HW)  
Martin Bauer, Chief, AQPB, Air and Hazardous Waste (A&HW)

SUBJECT: Corrections Of Air Emission Factors And Speciated Data for Idaho Wood Industry

I. SUMMARY

Attachment A, the result of recent wood kiln drying studies by the University of Idaho (U of I), provides reliable data of VOC air emission factors for listed species of pine and non-pine lumber. Though EPA is evaluating this data, DEQ's policy is to utilize this information now.

Attachment B, corrected for VOC error in the original 1992 Arizona study, should be distributed for DEQ and wood industry use. The corrected Attachment C, which is more inclusive and also contains wood industry information of Attachment A, is for internal DEQ use only.

II. BACKGROUND

In the latter part of 1996, DEQ compiled air emission data — lifted from EPA, AP-42, Oregon DEQ, and a 1992 study in Arizona — as pertinent for the wood industry within our state. However, the whole set of information, as shown in Attachment C, was deemed useful only for internal DEQ distribution. The lower set of data in Attachment C (which became Attachment B) was distributed for internal DEQ and in-state wood industry use. After some effort, DEQ finally was able to get a copy of the Arizona reference (Ref. #4: Gullian and Washington: ET Report 1/20 and 1/25/92 by Environmental Measurement, Flagstaff, AZ) which, upon close examination, merited corrections to be made on the whole "Lumber Drying Kilns" line. Thus, both Attachments B and C (dated 1/08/97) have now been corrected on PM, PM<sub>10</sub>, and VOC quantities. Note that VOC emission now stated correctly is 1.50 lb. of carbon per thousand board feet of "nominal type of wood," if that is the desired mode of calculation (non-speciated). Likewise PM and PM<sub>10</sub> emission numbers have also been corrected on the same line.

In July 1996, the University of Idaho performed tightly controlled VOC emission studies on a variety of pine and non-pine species of wood. The results of the study, which have been sent to EPA, are summarized in Attachment A. As yet, EPA has not indicated whether these results merit inclusion into AP-42 or any other appropriate publication on air emissions. The question then remains whether the results shown in Attachment A can be utilized by DEQ for internal (DEQ only) and/or external (Idaho wood mills) emission calculating purposes. Note that Attachment A also supplies weight-to-board feet conversions for the listed species of wood.

### III. DISCUSSION

DEQ has determined a priority ranking system for accepting emission factors. The hierarchy of origin is in this descending order:

1. Source testing (quality assured)
2. Manufacturers' guarantees— provided design (operating and maintenance) conditions are met
3. Similar facility's source testing (quality assured)
4. AP-42 publication
5. Other states' published results for similar sources
6. Engineering estimates

Since the testing by NCASI (actually performed at the University of Idaho in July 1996) was performed under such exacting conditions, the results obtained in Attachment A merit high emission factor ranking; especially since AP-42 has no data for this in Chapter 10 (newest publication). Therefore, we should use the VOC emission factor results of Attachment A internally and statewide at least until EPA comes up with better factors in AP-42. DEQ also needs to communicate this fact to the wood industry in Idaho pointing out its proper utilization whenever the wood factors can be attributed to wood species. It should be noted that Attachment A gives VOC emissions specie-by-specie and in groupings of pines and non-pines, whereas the Arizona reference supplied an "overall" VOC emissions factor for wood drying kilns. This last still should be used for lumber drying emission factors (in Attachments B and C) if speciation is mixed or unknown. Note that speciation requires more detail and accounting in regard to types of wood handled by the plant which some may consider as a confidential detail.

The need for correcting Attachments B and C (the 'Lumber Drying Kilns' line) is obvious. It is simply a correction of an error (in PM, PM<sub>10</sub>, and VOCs) the DEQ found after delving into the reference #4 cited previously for the wood drying plant kiln. It should be pointed out that U of I VOC study results were performed under excellent quality control, whereas the Arizona study was performed on the actual plant units where conditions (such as door leaks, gas flow measurements, and raw wood supply conditions) were very questionable.



A & HW Permit Engineers

Page Three

June 30, 1997

#### IV. CONCLUSION

From the standpoint of quality data, Attachment A (dated 6/26/97) merits a high degree of consideration for wood-drying kiln emission calculations of VOCs for the listed species and the pine and non-pine groupings.

The corrected Attachment B (dated 1/08/97) is distributed for internal (DEQ) and external (wood plants) use. Attachment A should be utilized judiciously within Idaho whenever speciation of wood is accounted for in scientifically ascertainable accounting means.

When appropriate, DEQ Air Quality engineers should rely on the attached information for permitting purposes. This will provide guidance to industry and consistency within DEQ regarding the wood industry in Idaho. Of course, facilities can always utilize specific source test information in lieu of the attached data.

VB/rs

Attachments: A, B and C

c:\... \wp61\wdfachan.qst

EMPIRED WOOD DRYING KILN RESULTS FROM UNIV. OF IDAHO STUDY (JULY 1986)

TABLE

SPECIES	ABBREVI.	RUN NO.	THICKN. Inches	WIDTH Inches	NO OF BRDS (8 ft. long ea.)	M Bd. FEET M Bd. Ft.	DRY LBR WT. pounds	Dry WL/Bd.FT. lb/M Bd. FT.	V O C Emissions as Carbon	
									lb C/dry T lb/dry Ton	lb C/M Bd.FT. lb/M Bd. FT.
NON-PINES										
Aspen	REDWO	9	2	4	164.1	0.875	1285	1488.6	0.17	0.12
Jefferson	CEDAR	10,11	1	4	455.3	1.214	2012	1657.3	0.15	0.12
Black	HEMLO	18	2	4	144.0	0.768	1232	1604.2	0.30	0.24
Douglas Fir: heart wood	DFH	1,2,3	2	4	420.2	2.241	4223	1884.4	0.86	0.81
Douglas Fir: sap wood	DFS	4	2	4	140.1	0.747	1086	1467.2	0.28	0.21
Douglas Fir (Coastal)	CDF	14	2	4	150.0	0.800	1245	1558.3	0.44	0.34
White Fir	GF	17	2	4	150.0	0.800	1356	1695.0	0.63	0.53
White Fir	WF	15,16	2	4	232.7	1.241	2218	1787.3	0.77	0.57
Non-pine avg.								1640.0	0.45	0.37
PINES										
Monterey Pine	PP	5,6	1	4	440.3	1.174	2193	1868.0	1.09	1.86
Sugar Pine	SP	20	1.25	8	135.0	0.675	1412	2091.9	1.98	2.07
White Pine	WP	19	1	4	241.1	0.843	1142	1778.0	2.54	2.26
South. Yellow Pine- Ark	SYP-AK	12,13	2	4	246.0	1.312	3074	2343.0	2.03	2.36
South. Yellow Pine-Tex	SYP-TX	7,8	2	4	232.7	1.241	3253	2621.3	3.05	3.32
Pines avg.								2140.0	2.32	2.37
Non-pine & pines avg.								1591.9	1.14	1.12

Reference: National Council of the Paper Industry for Air and Stream Improvement, NCASI, Corvallis Oregon;

"A Small-Scale Wood Kiln Study on Method 25A Measurement of VOC Emissions," NCASI, Research Tri. Park, NC; Tech. Bulletin No. 718, July 1986.

## Idaho DEQ Emission Factor Guide for Wood Industry

## ATTACHMENT B

01/06/97  
vab

Process Equipment	Description	Units	Pounds PM	Pollutant PM-10	Per Unit SOx	Thruput NOx	CO	VOC	PM/PM-10 Adj. Factor	For Condition	Reference
Debarking	Uncontrolled Ems.	Tons of logs	0.024	0.011	--	--	--	--	--	--	1,2
Ring Logs	Uncontrolled Ems.	Tons of Logs	0.35	0.2	--	--	--	--	0.4-1.0**	55-25% H2O in log	1,2
Dust Pile	Uncontrolled Ems.	Tons Handled	1.0	0.36	--	--	--	--	0.4-1.0	50-25% H2O in pile	1,2
Board Drying Kilns	Uncontrolled Ems.	M Board Feet	0.33	0.19	--	--	--	1.50	--	--	1,4
Chips Exhaust	Dry & Green Chips,	Bonedry Tons	0.5	0.25 (both for Medium Efficiency)*				--	--	--	3
	Shavings, Hogged	Bonedry Tons	0.2	0.16 (both for High Efficiency)*				--	--	--	3
	Fuel/Dark, Green	Bonedry Tons	0.001	0.001 (with Baghouse)				--	--	--	3
	Sawdust.										
	Mill Mix	(grains/scf Air)	0.03	0.015 (both for Medium Efficiency)*				--	0.4-1.0***	50-25% H2O in Mix	2
	Mill Mix	(grains/scf Air)	0.015	0.011 (both for High Efficiency)*				--	0.4-1.0***	50-25% H2O in Mix	2
	Mill Mix	(grains/scf Air)	0.0001	0.0001 (with Baghouse)				--	0.4-1.0***	50-25% H2O in Mix	2
Chips Exhaust	Sanderdust	Bonedry Tons	2.0	1.6 (both-- for High Efficiency)*				--	--	--	3
	Sanderdust	Bonedry Tons	0.04	0.04 (with Baghouse)				--	--	--	3
	Sanderdust	(grains/scf Air)	0.055	0.025 (both for Medium Efficiency)*				--	0.65-1.0***	50-25% H2O in Mix	2
	Sanderdust	(grains/scf Air)	0.025	0.02 (both for High Efficiency)*				--	0.65-1.0***	50-25% H2O in Mix	
	Sanderdust	(grains/scf Air)	0.0001	0.0001 (with Baghouse)				--	0.65-1.0***	50-25% H2O in Mix	
Log Box	Medium Efficiency	Bonedry Tons	0.1	0.05	--	--	--	--	--	--	3
Chips Wood	Bin Venting	Tons Handled	1.0	0.58	--	--	--	--	0.4-1.0	50-25% H2O content	1,2
	Bin Unloading	Tons Handled	2.0	1.2	--	--	--	--	0.4-1.0	50-25% H2O content	1,2

EPA 450/4-90-003, March 1990, "AIRs Facility Subsystem Source Classification Cases and Emission Factor Listing for Criteria Pollutants." AP-42, dated February 1980.

Oregon DEQ/AQ Permitting and Inspection Manual, November 1993.

Gullen, R. and Washington, E., ET Report 1/20 and 1/25/92 by Environmental Measurement, Flagstaff, AZ, 1992.

AP-42, dated January 1995.

Efficiency range determined per C. E. Lapple equations (Air Pollution Control by C. Cooper and F. C. Alley, Chapter 4).

Consider also whether operation is inside and how well enclosed.

\* Mill Mix is less dry and more coarse than Sander Dust.

Substrate	Description	Units	Pounds Pollutant Per Unit Throughput	VOC	PM <sub>10-10</sub> Ad. Factor	For Conversion	References		
			PM <sub>10-10</sub> SO <sub>x</sub> NO <sub>x</sub> CO						
Wood-fired	Direct Over-fire cast	1000 lb Dry	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	Spreader-Stoker	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	Pulverized bed	1000 lb Dry	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Wood-fired	Uncontrolled	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	with dry-stack nitrogen	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	with electrostatic precip.	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Early-fired	Uncontrolled	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	with dry-stack nitrogen	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	with electrostatic precip.	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Modernized-fired	Uncontrolled	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	with dry-stack nitrogen	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	with electrostatic precip.	Tons burned	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Hydro-Gen Heat	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Str. Heat	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Wood-fired	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
off-gasboard	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Drying	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Hardware	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
absorbing	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Large	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Small	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
off-gasboard	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Drying	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Hardware	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
absorbing	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Large	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Small	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
off-gasboard	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Drying	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Hardware	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
absorbing	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Large	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Small	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
off-gasboard	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Drying	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Hardware	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
absorbing	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Large	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Small	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
off-gasboard	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Drying	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Hardware	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
absorbing	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Large	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Small	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
off-gasboard	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Drying	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Hardware	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
absorbing	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Large	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Small	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
off-gasboard	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
	(Burned at 40% C)	300 Tons	0.40	0.20	0.014	0.21	3.0	0.13	1.2
Drying	Direct-fired (Unburned)	1000 sq. ft. on	0.40	0.20					